

Amendments to the Claims

1. (currently amended) A receiver for ~~receiving~~ demodulating a multi-tone, multi-band signal modulated using an inverse discrete Fourier transform to generate a signal having a plurality of tones spaced in frequency in a plurality of frequency bands, comprising:

a plurality of demodulators, wherein each of the plurality of demodulators demodulates one of the plurality of frequency bands of the multi-tone, multi-band signal,
~~for demodulating a respective one of a plurality of bands in the multi-band signal, and~~
wherein each demodulator includes a discrete Fourier transform module that performs a discrete Fourier transform on the plurality of tones within one of the plurality of frequency bands.

2. (original) The receiver of claim 1 wherein the process speed of each demodulator is determined by the respective frequency band.

3. (original) The receiver of claim 1 wherein each demodulator further includes an equaliser connected to the output of the discrete Fourier transform.

4. (original) The receiver of claim 1 wherein each demodulator further includes a filter for filtering the received signal prior to the discrete Fourier transform.

5. (original) A transceiver including a receiver according to claim 1.

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6. (original) The transceiver of claim 5 in which each demodulator includes an echo canceller for removing an echo associated with a signal in a transmitter of the transceiver from the received signal.

7. (original) The transceiver of claim 6 in which the echo canceller is connected to remove the echo at the input to the discrete Fourier transform.

8. [[9.]] (currently amended) The transceiver of claim 6 in which each echo canceller comprises an adaptive filter.

9. [[10.]] (currently amended) The receiver of claim 1 in which the multi-band signal is generated by nulling selected tones in the modulator.

10. [[11.]] (currently amended) The receiver of claim 1 in which the multi-band signal is generated by filtering the output of the modulator.

11. [[12.]] (currently amended) A method of demodulating a multi-tone, multi-band signal modulated using an inverse discrete Fourier transform, comprising the step steps of:

dividing the multi-tone, multi-band signal into a plurality of data signals, each data signal having a plurality of tones in one of the plurality of frequency bands; and
providing a demodulator for each respective band of the multi-band signal
wherein each demodulator performs a demodulating each of the plurality of data signals
using a discrete Fourier transform.

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12. [[13.]] (currently amended) The method of claim 11 [[12]] wherein each demodulator further comprises an equalisation step.

13. [[14.]] (currently amended) The method of claim 11 [[12]] wherein each demodulator filters the received signal prior to the discrete Fourier transform.

14. [[15.]] (currently amended) The method of claim 11 [[12]] in which the demodulating step is carried out in a transceiver.

15. [[16.]] (currently amended) The method of claim 14 [[15]] in which each demodulator further performs an echo cancellation step to remove an echo associated with the signal in a transmitter of the transceiver from the received signal.

16. [[17.]] (currently amended) The method of claim 11 ~~any one of claims 12 to 16 in which~~ wherein the multi-band signal is generated by nulling selected tones in the modulator.

17. [[18.]] (currently amended) The method of claim 11 [[12]] in which the multi-band signal is generated by filtering the output of the modulator.

18. (new) The receiver of claim 1 further comprising a splitter that divides the received multi-tone, multi-band signal into a plurality of data signals, each data signal having a plurality of tones in one of the plurality of frequency bands,

wherein the splitter communicates each of the plurality of data signals to one of the plurality of demodulators that demodulates the frequency band of the data signal.

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19. (new) The receiver of claim 1 wherein the discrete Fourier transform module performs a discrete Fourier transform at sampling frequency (F_s , k) wherein the sampling frequency (F_s , k) is associated with the frequency band of the demodulator.

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20. (new) The receiver of claim 19 wherein the sampling frequency (F_s , k) is at least double the maximum frequency of the frequency band of the demodulator.
